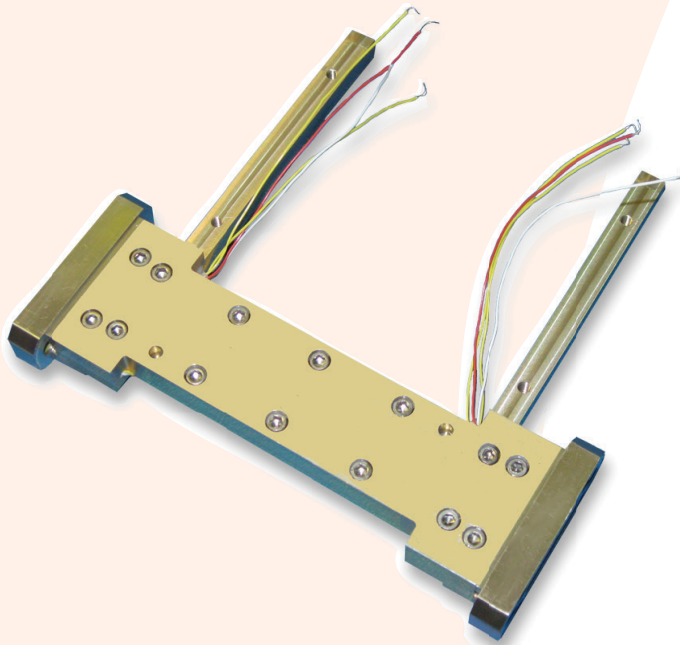


X-Band Toroid Ferrite Phase Shifters

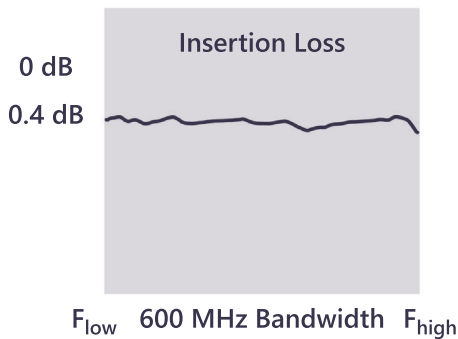
Good VSWR
Low Insertion Loss
Minimal Insertion Phase Variation



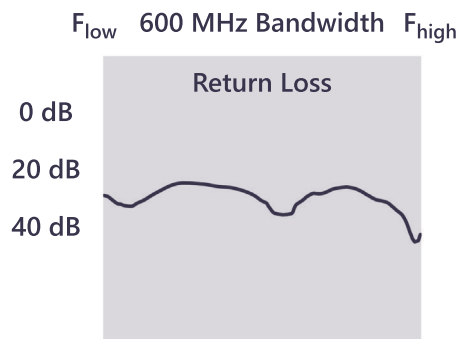
Microwave Applications Group (MAG) continues to broaden its product line in response to customer requests and is pleased to offer non-reciprocal toroidal phase shifters. Several production quantity orders of these X-Band units have been delivered and accepted.

Tuning inputs and outputs yields successful performance over a minimum of 600 MHz bandwidth at different points in the X-Band range.

Other toroid phase shifter and switching devices have been provided by MAG. In addition to performance requirements, devices are customized for interface and dimensional needs as specified



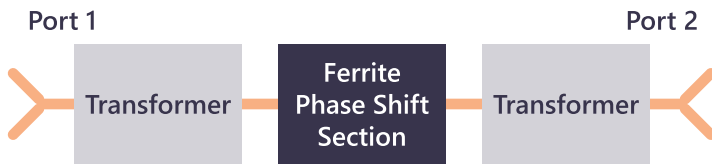
Measured values taken at lab ambient



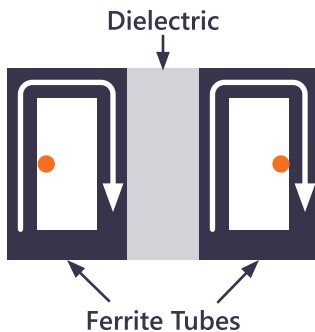
PARAMETER	VALUE
Peak Power	1.5 kW min
Insertion Loss	0.65 dB max
Return Loss	-20.8 dB max (1.2:1 max)
Differential Phase Shift	greater than 200 degrees
Insertion Phase Variation	0.4 degree RF per °C max

X-Band Toroid Ferrite Phase Shifters

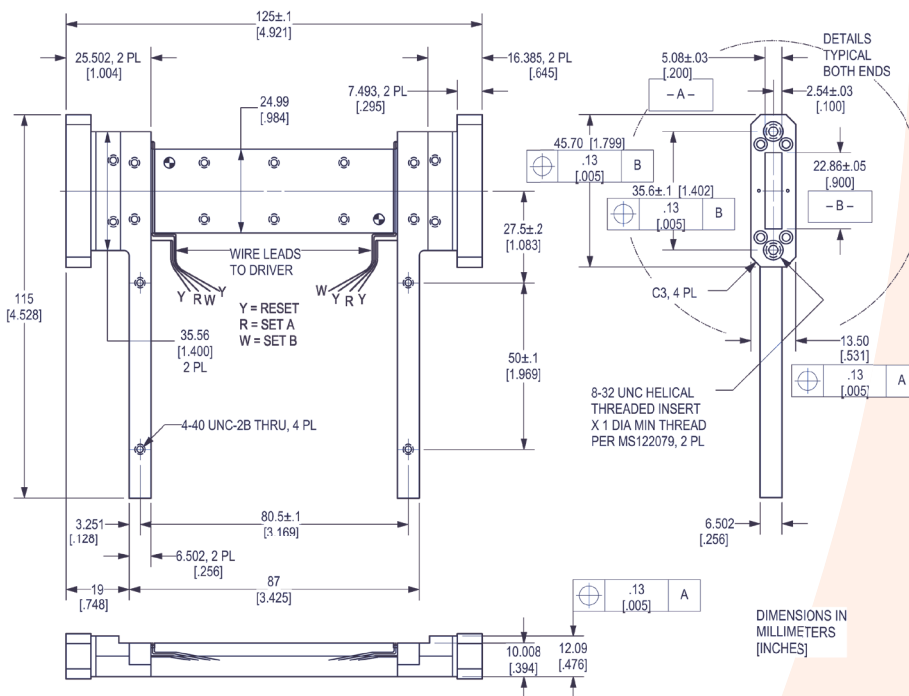
Block Diagram



Toroid Cross Section



Outline Drawing



Sample of programs supported by MAG as OEM:

- APQ-164 B-1B ORS
- APQ-181 B-2
- APS-143 CP-140 Imaging
- APY-1/2 E-3 AWACS
- AR320 3D Air Defense
- ARTS-V1 / CLPS
- ARTS-V2
- ASARS-2 Synthetic Aperture
- ARSR-4 FAA Long Range
- ASTOR
- DWSR-2501C Doppler Weather
- Global Hawk Synthetic Aperture
- I-15/23 Reflectarray
- I-30 Simulator
- MPN-14K Landing Control
- PAAS Test Range
- Princeton Plasma Physics Laboratory
- RAC 3D Air Defense
- Skyshield 35 Air Defense
- Smart-L 3D Air Defense
- SPN-35C Approach Control
- SPQ-9B Surveillance / Tracking
- TPAAS Test Range
- TRS-3D Multimode
- TRS22XX 3D Air Defense
- ZPQ-1 Predator TESAR

MAG DMSMS program support:

- MPQ-64 Sentinel SHORAD
- APY-1/2 E-3 AWACS
- BMEWS / PAVE PAWS
- HAWK
- SPN-35C Approach Control
- MSQ-T43 MTE System

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